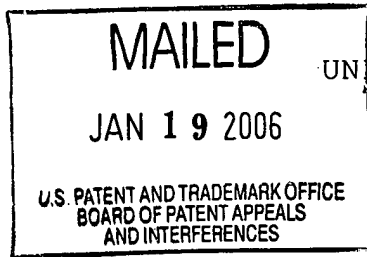


The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.



UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte TADASHI SENOO, HIROYUKI AKASHI,  
HIDETO AZUMA, MASHIO SHIBUYA, KAZUHIRO NODA,  
SHINI CHIRO YAMADA, TOSHIKAZU YASUDA and KOJI SEKAI

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Appeal No. 2005-1806  
Application No. 09/162,992

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HEARD: December 13, 2005

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Before KIMLIN, PAK and KRATZ, Administrative Patent Judges.

KIMLIN, Administrative Patent Judge.

#### DECISION ON APPEAL

This is an appeal from the final rejection of claims 2-4, 6-9 and 12. Claim 12 is illustrative:

12. A gel electrolyte secondary cell comprising:

a positive electrode;

a negative electrode comprising a current collector and a powder mixture including a graphitized carbonaceous material obtained from a plurality of meso-carbon micro-beads and a binder, wherein the powder mixture is coated on the current collector at a thickness ranging from 10  $\mu\text{m}$  to 200  $\mu\text{m}$ ; and

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a gel electrolyte comprising an electrolyte salt, a non-aqueous solvent and a high-molecular weight material having a number average molecular weight ranging from 5000 to 500000 wherein the non-aqueous solvent at least includes propylene carbonate in an amount ranging from 10 mol% to 75 mol% and ethylene carbonate.

The examiner relies upon the following references as evidence of obviousness:

Ozaki et al. (Ozaki)	5,522,127	Jun. 4, 1996
Akashi	EP 0 724 305	Jul. 31, 1996
(European Patent Application)		

Appellants' claimed invention is directed to a gel electrolyte secondary cell comprising a positive electrode, a negative electrode and a gel electrolyte comprising a non-aqueous solvent that includes propylene carbonate. The negative electrode comprises a powder mixture including a graphitized carbonaceous material obtained from meso-carbon micro-beads.

Claims 2-4, 6-9 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Akashi in view of Ozaki.

Appellants submit at page 4 of the principal brief that they "do not argue for the separate patentability of each of the dependent claims separate and apart from the independent claim." Accordingly, all the appealed claims stand or fall together with claim 12.

We have thoroughly reviewed each of appellant's arguments for patentability. However, we are in complete agreement with

the examiner's reasoned analysis and application of the prior art, as well as the examiner's cogent and thorough disposition of the arguments raised by appellants. Accordingly, we will adopt the examiner's reasoning as our own in sustaining the rejection of record, and we add the following for emphasis only.

There is no dispute that Akashi, like appellants, discloses a gel electrolyte secondary cell comprising positive and negative electrodes and a gel electrolyte comprising a non-aqueous solvent that includes propylene carbonate. As acknowledged by the examiner, Akashi does not expressly teach that the carbonaceous material for the negative electrode is obtained from meso-carbon micro-beads. However, Ozaki evidences that it was known in the art to use such mesophase graphite particles in the negative electrode of a non-aqueous electrolyte secondary cell. Accordingly, we fully concur with the examiner's conclusion that it would have been obvious for one of ordinary skill in the art to use meso-carbon micro-beads for the negative electrode in Akashi for the advantage taught by Ozaki, namely, smooth intercalating of lithium at charging over a wide temperature range resulting in an increased cell capacity (see Ozaki at column 3, lines 12-14). We agree with the examiner that "[o]ne of skill would be motivated to use the graphite negative

electrode of Ozaki as the graphite negative electrode of Akashi because both materials are capable of occluding lithium and the graphitic negative electrode of Ozaki leads to increased cell capacity" (page 5 of Final rejection, second paragraph, last sentence).

Appellants submit that "nowhere does the *Akashi* reference disclose or suggest a negative electrode material that includes a graphitized carbonaceous material obtained from meso-carbon micro-beads" (page 7 of principal brief, second paragraph). However, this much is conceded by the examiner who relies upon Ozaki for the obviousness of using the micro-beads for the electrode of Akashi.

Appellants also submit that "*Akashi* merely discloses a laundry list of possible negative electrode active materials that may include metallic lithium, a lithium alloy and a carbonaceous material including any number of examples none of which disclose a graphitized carbonaceous material obtained from a plurality of meso-carbon micro-beads" (paragraph bridging pages 7-8 of principal brief). However, we agree with the examiner that "[a] list of only three possible materials for the negative electrode material (lithium, lithium alloy or carbonaceous material) is hardly considered 'a laundry list'" (page 5 of Answer, second

paragraph). Furthermore, as noted above, Ozaki evidences the obviousness of selecting meso-carbon micro-beads as the carbonaceous material of Akashi.

Appellants also maintain that Akashi and Ozaki are not combinable because Ozaki "clearly disfavors the use of propylene carbonate as an organic solvent of the organic electrolyte for the non-aqueous electrolyte" (page 8 of principal brief, third paragraph). However, Akashi, not Ozaki, discloses the use of propylene carbonate as an organic solvent, and appellants have not demonstrated why one of ordinary skill in the art would have been dissuaded from using the carbonaceous material of Ozaki for the negative electrode of Akashi. Nor have appellants established that the use of propylene carbonate as the only solvent in appellants' secondary cell would not experience the disadvantageous decomposition of propylene carbonate with the evolution of gas taught by Ozaki. As noted by the examiner, the claims on appeal "require as little as 10 mol% of propylene carbonate" (page 6 of Answer, first paragraph).

As a final point, we note that although appellants make reference to specification data, appellants base no argument upon objective evidence of nonobviousness, such as unexpected results,

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which would serve to rebut the inference of obviousness established by the applied prior art.


In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

Edward C. Hunter

EDWARD C. KIMLIN  
Administrative Patent Judge

  
CHUNG K. PAK

CHUNG K. PAK  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS AND  
INTERFERENCES

Peter F. Knopf

PETER F. KRATZ  
Administrative Patent Judge

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Application No. 09/162,992

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